



Modern surgical communication and the practice of surgery

by Heena P. Santry, MD; Jeffrey J. Dehmer, MD; Jennifer S. Nelson, MD; and Shankar R. Raman, MD, MRCS

As is the case with the business world and with society in general, how surgeons communicate with one another, with patients, and with the bureaucracy governing surgical practice has changed tremendously in the last 20 years. With the emergence of computers, the Internet, and, more recently, new media, surgical communication has evolved dramatically.

The term “new media” refers to digital communication, as opposed to traditional paper and verbal communication.¹ It includes electronic versions of the health record (EHR) and mail (e-mail). Web 2.0, which includes social networking sites such as Facebook and Twitter, is the most modern form of communication and allows for real-time updates, interaction, and user-generated information exchange. The College has embraced new media on behalf of its Fellows (see sidebar, pages 34–35). With rampant growth of communication tools, surgeons today are challenged in many ways beyond the traditional scope of practice. This article will explore the benefits, challenges, and policy implications of advanced technology, new media, and Web 2.0.

New media and the surgeon's image

New media has linked patients and surgeons in a variety of innovative ways. Social networking sites educate the public and stimulate discussion on a range of surgical topics. Blogs (Web-based multimedia journals containing personal reflections, comments, and links posted by the “blogger”) and microblogs (essentially, condensed versions of blogs limited by word count or byte-size) offer surgeons the chance to be heard by a much broader audience than their patients and colleagues. Finally, the Internet provides a relatively inexpensive means of promoting one's surgical practice and attracting new patients. Embracing these new modes of communication, however, has resulted in the blurring of traditional norms governing the surgeon-patient relationship and society's view of surgeons.

Social networking sites such as Facebook and MySpace allow users to connect virtually to one another and share thoughts, interests, and photos through online posts. As recently described by Pauline W. Chen, MD, FACS, “Historically, doctors

The American College of Surgeons and new media

Fourteen year ago, all communications from the American College of Surgeons were paper-based. As medical practice has embraced Internet technology and new media, so, too, has the College. The College's movement into Web 2.0 is progressing rapidly.

The College's first presence on the Internet came in 1996, with the launch of its Web site (<http://www.facs.org>). Originally consisting of a few pages and with just 60 files online, the Web site currently contains more than 8,000 files (including HTML text, graphics, and PDF files) and generates 2 million hits per month. The College's Web site makes specific resources freely available to the general public to promote and support the delivery of high-quality surgical care.

The College's Patients As Partners in Surgical Care program (<http://www.facs.org/patienteducation/>) provides medically accurate and up-to-date information on surgical diseases and procedures in order to empower patients "with the knowledge and skills to participate in [their] surgical care." Through this section of the ACS Web site, patients can also find a surgeon who is a Fellow of the College and be directed to the professional organization that will verify board certification and facility accreditation. Once a patient is certain of a planned procedure, this online tool provides resources on to how to prepare for surgery and explains the entire perioperative process.

The full text of all College publications, including the downloadable planner for the Clinical Congress, can also be accessed online by members and other interested individuals. The College's members-only Web portal contains "mirror images" of these publications and many other materials, making them available to all of the College's audiences. Additionally, some of the College's most robust resources for volunteerism (<http://www.operationgivingback.facs.org/>) and advocacy (<http://www.facs.org/acspa/index.html>) can be accessed through both its Web site and Web portal.

In 2006, the College stepped beyond the Web 1.0 Web site and launched the members-only Web portal, *e-FACS.org*, a first-of-its-kind professional networking and resource site specifically for surgeons.

All facets of membership maintenance and renewal can be handled online through *e-FACS.org*. Members can search and enroll online for the College's numerous educational offerings and coding workshops, and tools intended only for members of the College—such as the CME tracker and the Case Log System—are available only through the Web portal.

A major feature of the portal is that it allows members to join "communities" based on similar interests. The portal also provides users access to key features relevant to modern regulation of surgical practice. The portal's My CME feature provides a convenient way to track continuing medical education credits and a simple way to generate evidence of participation. The portal's Case Log System (which uses a separate login for additional security) uses the validated National Surgical Quality Improvement Project (NSQIP) risk-adjustment variables in a database where members can enter each of their cases and any adverse outcomes, with all of the relevant factors that have been proven to influence outcome. These data can ultimately be blindly compared with those of other surgeons performing the same procedures. These networking and data-tracking opportunities, as well as exclusive access to videos, podcasts, discussion forums, and other useful features, have contributed to the portal's growing popularity since its 2006 inception. The portal attracts more and more users every month; between 2008 and 2009, the number of unique users rose by 13 percent and produced more than 200,000 unique page views.

Beyond the Web, e-mail blasts have been aggressively used by the College since it first launched its hugely popular *ACS NewsScope* in 1999, with approximately 45,000 member in-boxes receiving it weekly in 2010. E-mail blasts are also a key way to keep members informed of issues in need of urgent attention. For example, numerous e-mail blasts were sent to members during the debate on health care reform, and such communications will continue to be sent as details of this legislation—as related to surgeons and their patients—become clear.

Another example of how the College is using "special alert" e-mails were the eight e-mail blasts that were sent during the three weeks following the Haiti earthquake. Those communications served as both a recruitment

tool for potential volunteers, and as a regular update mechanism for keeping members abreast of the rapidly changing situation on the ground for Haitians, and for those deployed to assist in the recovery efforts related to the disaster.

The Resident and Associate Society of the American College of Surgeons (RAS-ACS) also uses an e-mail software program to disseminate its e-newsletter, *RAC-ACS News*. The e-newsletter provides an every-other-month account of ongoing RAS-ACS activities and programs, and details information and opportunities that are likely to be of interest to Resident Members and Associate Fellows of the College. Likewise, the Young Fellows Association disseminates its quarterly e-mail newsletter, *YFA e-News*, to practicing young surgeon members of the College.

The College's most recent advances in modern surgical communication have been numerous, and they are expected to also grow in popularity in the future. Both live and archived webinars are frequently utilized to replace in-person seminars on a variety of topics ranging from Cancer Staging Updates to New CMS Policy of Consultation Coding. In February and June 2009, the College's Board of Governors held their first two live webcasts, allowing members to discuss important issues challenging the safe and effective practice of surgery. These formal, yet virtual, professional exchanges are furthered more informally on the College's Twitter account, with nearly 500 followers (<http://twitter.com/amcollsurgeons>), and Facebook group (<http://www.facebook.com/#!/group.php?gid=36660331571>), with more than 650 members.

The College has shown no signs that it is abandoning traditional media, and has clearly mastered the use of Web 1.0 to communicate with a majority of its members, while its Web 2.0 products are continuing to grow. As Linn Meyer, Director of the College's Division of Integrated Communications, puts it, "The College is committed to using every single communications tool that makes sense for all demographic groups that are part of the College's membership."

erred on the side of saying little or nothing about themselves, positioning themselves as a "blank slate" against which patients could freely discuss concerns."² However, surgeons who participate in Web-based social networking are revealing themselves to a wide audience, including friends, colleagues, and, possibly, patients. Privacy settings vary from one site to another and access to personal information—whether posted by the surgeon or by virtual "friends"—is variable. Recently, Sachin Jain, MD, wrote about the complexities of accepting a "friend request" from a patient and how social networking sites make "clinicians' attitudes and activities increasingly visible." Like Dr. Chen, Dr. Jain writes about the "importance of maintaining professional distance" that is so emphasized in medical training, and on how exposure of one's personal life on the Internet can shorten this distance.³ It is evident that surgeons who engage in social networking sites push the boundaries of their professional relationships when their personal information is shared intentionally or unintentionally with present or future patients. The medical profession is still grappling with the moral and ethical challenges of online social networking, but the current norm appears to be that physicians should maintain the long-espoused notion of professional distance.

Blogs and microblogs allow surgeons to share personal anecdotes, the details of which can cross the traditional lines of medical etiquette. Whether used as a therapeutic outlet for their stressful work experiences or to solicit the input of colleagues on a challenging case, when surgeons share seemingly anonymous patient information or lessons learned through mistakes, issues of patient privacy and medicolegal liability arise. Twitter, a microblogging tool, allows users to send short messages, called "Tweets," to the author's "followers" or as open-access. Live updates from the operating room allow patients, family members, and the public unique access to surgery, thus raising public awareness of procedures and potentially eliminating the fear of the unknown for those following Tweets about a loved one's procedure. However, intraoperative Tweeting also raises concerns about the surgeon's focus on the operation. Similarly, while it may also comfort patients under local anesthesia to Tweet during procedures, it might distract the surgeon, whose

every action is under the scrutiny of any number of followers in the blogosphere.⁴

New media has also transformed patients into consumers, rather than passive recipients, of surgical care, thus putting even greater pressure on the image cultivated by surgeons. Traditionally, a patient sought care for elective surgical problems based on a referral from their own physician, and occasionally, by word of mouth. However, with the Internet, patients can now research surgeons based on expertise, as well as outcomes and bedside manner. There are countless Web sites, such as *angieslist.com*, *ratemds.com*, and *vitals.com*, where patients rate and review their surgeons, much like they would review a restaurant or gadget. With Web sites ranking patient satisfaction, the pressure on physicians is enormous. It is possible that reimbursement might someday be tied to patient satisfaction; medicine is already becoming a consumer-driven industry.

In response to this trend, many surgeons have already become savvy Internet marketers, cultivating for themselves an online image through social media and individual Web sites to attract patients to their practices. This trend has been especially pervasive in specialties such as cosmetic, vein stripping, and bariatric surgery, where controversy exists in the medical and lay community regarding medical necessity. There are companies whose only service is creating Web sites marketing surgical services with tag lines such as, “The truth is that most specialists in your position have a Web site that fails to harness the power of the Internet to help your business grow.”⁵

Surgeons will have to define the rules of Internet conduct, and organizations such as the American College of Surgeons may need to add specific language related to online presence into their codes of ethical behavior.

Caring for the “e-patient”

The traditional surgeon-patient relationship has also been challenged by the new type of patient born of the Internet and new media. This so-called e-patient is technology-savvy and derives medical knowledge from various online resources for health care decision making.⁶ The Pew Internet and American Life Project reports that, in 2009, approximately 61 percent of Ameri-

cans accessed the Internet for information about their health care, up from 25 percent in 2000; a majority are accessing user-generated (lay public) content.⁷ The online community *www.e-patients.net* reports that being an e-patient results in “better information and services and different (not always better) relationships with the doctors.”⁶ A simple Internet search will yield innumerable online patient communities for various diseases such as ulcerative colitis, obesity, and breast cancer. The impact of the patient communities on emotional well-being and health-seeking behavior are profound. These communities serve as virtual support groups that break geographic barriers between patients suffering the same diseases; but the content shared in them is often anecdotal, unsupported by data. Additionally, the success stories and advice shared online gives patients the confidence to question their surgeons’ decision making. The e-patient sometimes is armed with as much, if not more, information (evidence-based or not) than the surgeon; this is especially true for rare conditions. This situation raises the question: what is the surgeon’s role for patients who rely more on the Internet than on professional experience and judgment to dictate care?

Typically, good news from one’s surgeon might be delivered via a written report mailed to the patient’s home. Meanwhile, bad news is most often delivered in person, and rarely over the telephone. The use of e-mail and text messaging to communicate with patients represents an innovative approach to maintaining the physician-patient relationship. Over the years, the use of e-mail to communicate with patients has been controversial, despite data showing that such communication improved the physician-patient relationship.⁸ More recently, text messaging has been shown to be beneficial in both maintaining relationships with patients and improving compliance with treatment recommendations. For example, pediatric liver transplant patients who received text messages reminding them to take their medications had better adherence and outcomes.⁹ The potential benefits of e-mailing and texting patients include ease of transmitting lab results and appointment reminders, and potentially better follow-up. However, there are concerns with both e-mail and text messaging in

regard to the timeliness of response. In theory, non-urgent issues might best be handled over e-mail—but who is responsible for triaging e-mails for acuity when a physician is not always at his or her inbox? Texting allows for acquisition of information without mandating an immediate response, but will text messages limited to just a few words be appropriately interpreted? It remains to be determined what issues can be safely managed over e-mail or via texting, and what type of compensation and liability is associated with such physician-patient interaction that is devoid of real-time feedback.

Interacting with the e-patient generates unprecedented medicolegal and ethical concerns for surgeons. Agreed-upon guidelines for the profession are lacking. At issue are not only the traditional boundaries of the surgeon-patient relationship, but also patient safety.

Electronic health records

While surgeons have had to adapt to a new style of patient, they have also had to adapt to a new kind of record keeping, one that is now mandated for all health care facilities and providers by the 2009 American Recovery and Reinvestment Act (ARRA).¹⁰ The ARRA incentivizes eligible providers in the form of cash payments for those who demonstrate “meaningful use” of certified EHR technology beginning in 2011. However, the ARRA also established penalties in the form of reduction in Medicare payments for those who do not use certified technology by 2015.

An EHR is an electronic health record that contains streamlined, easily accessible, and legible patient information. It includes digitized storage systems for radiological images, computerized provider order entry (CPOE), electronic charting of progress notes, operative dictations, and vital signs. As of April 2009, fewer than 2 percent of acute care hospitals have a comprehensive EHR system, with only 17 percent of surveyed physicians using electronic records of any sort.¹¹ Since publication of the landmark Institute of Medicine report *To Err Is Human: Building a Safer Health System* in 2000, there has been a push to improve patient safety.¹² ARRA provides the funds for development and

implementation of information technology as a means of ensuring patient safety.

Barriers to EHR implementation include cost, lack of user training, privacy concerns, and technical difficulty merging systems within, and across, institutions. These issues, particularly cost, are heavy burdens on the 78 percent of physicians who practice in groups of eight or fewer.¹¹ Furthermore, having faster access to more comprehensive records does not necessarily improve the quality of the care delivered. Increasing reliance on technology, combined with growing time constraints, has led to a new phenomenon dubbed “clinical plagiarism,” in which cutting and pasting from the EHR often substitutes for a thorough history and physical.¹³ Nevertheless, the forces pushing for improved technological integration of patient data for the goal of improved outcomes and efficiency will continue.

An ideal system would be one in which all of the pertinent information for a patient (past history, medications, allergies, family history, labs, images) could be found in one place that is easily accessible and updated in real time. This information could potentially be something patients could carry with them. Time spent searching for, and awaiting, old records from referring institutions would be drastically reduced, thus improving continuity of care and reducing duplicate tests. Automated algorithms in the EHR could improve processes of care and patient safety with triggers for screening tests, follow-up, and treatment protocols. For example, CPOE has been shown to reduce medication errors and harmful drug interactions.¹⁴ The EHR can also enable less burdensome billing and coding and reduce potential for over- or under-billing by quickly identifying key portions of procedures or consultation visits.¹⁵ Lastly, de-identified data from EHRs can greatly enhance opportunities for comparative effectiveness research, the results of which will have major implications for best practice guidelines. These benefits notwithstanding, patient privacy is a significant concern. With sensitive information regarding transmissible diseases or mental health disorders incorporated into the EHR, the security of these data will be paramount in the development of any integrated system.

Telemedicine

New media technologies have also enabled surgical health care delivery via video conferencing, satellite technology, and information-transfer over the Internet. A major goal of telemedicine is to expand access to health care for patients in remote or rural areas and appropriately triage patients when local resources cannot serve their medical needs. By allowing specialists to consult, monitor, and even perform interventions from a distance, telemedicine has great potential. A recent report documented the lives saved, as well as substantial cost savings, due to avoidance of transfer for non-life-threatening emergencies in a telemedicine system connecting rural sites to a Level I trauma center.¹⁶ However, a study evaluating the use of telemedicine in monitoring intensive care unit patients demonstrated that

many physicians are reluctant to embrace this new technology.¹⁷ Without the support of practitioners and a preponderance of evidence, it will be difficult to develop the infrastructure necessary to use telemedicine effectively.

Although skepticism has slowed research on the utility and safety of telemedicine, the practice of telemedicine is growing, especially in rural areas. Some U.S. states, such as Texas, as well as private insurers, have implemented teleconferencing to connect patients and doctors.¹⁸ Online consultations, lacking the benefit of a physical exam, however, are not the same as an in-person visit. Practices that offer this service include lengthy disclaimers on their Web sites, but the medicolegal implications for the surgeon treating patients remotely are unclear. There are no precedents on the standards for granting remote treatment privileges or licenses to practice medicine virtually across state lines.



Dr. Santry is an acute care surgery fellow, Massachusetts General Hospital, Boston, MA. She is Secretary of RAS-ACS, a member of the RAS-ACS Communications Committee, RAS-ACS liaison to the ACS Women in Surgery Committee, and RAS-ACS representative to the ACS General Surgery Advisory Council.




Dr. Dehmer is a resident in general surgery, University of North Carolina Hospitals, Durham, NC. He is a member of the RAS-ACS Communications Committee, and Community Editor, eFACS Web portal Resident and Associate Fellows Community.

Conclusion

The implications of the new media and Web 2.0 are profound. In her blog entry, “Medicine in the Age of Twitter,” Dr. Chen notes there are no evidence-based guidelines to direct doctors in the use of social media.¹⁹ There is fear that surgeons may overexpose themselves through new media and modern marketing. However, it is possible that increased familiarity between surgeon and patient may strengthen relationships and improve outcomes. There is fear that e-patients overexposed to medical information may place unwarranted demands on surgeons. Nevertheless, educated and empowered patients raise disease awareness and promote health care participation. While implementation of the EHRs may be costly and procedurally burdensome, if used appropriately, they may improve the efficiency and quality of care. Similarly, while patients in all geographic areas, and with various levels of communication savvy, are entitled to have access to the highest level of care, when medical advice is being given remotely via e-mail, text messaging, or telemedicine, liability and reimbursement are a significant concern.

The uncertainties notwithstanding, new media is here to stay. Surgery has always been a specialty of technical and technological evolution. While

regulatory issues will undoubtedly play a role, surgeons' enthusiasm will largely determine the speed of this communication evolution. With thoughtful and carefully planned use of new media, surgeons will continue to be leaders in the implementation of new technology in the pursuit of providing the highest quality of patient care. 

References

1. Lister M. *New media: A critical introduction*. London, New York: Routledge; 2003:404.
2. Chen PW. Too much information. *New York Times*. November 20, 2008. Available at: <http://www.nytimes.com/2008/11/21/health/chen11-20.html>. Accessed April 14, 2010.
3. Jain SH. Practicing medicine in the age of Facebook. *N Engl J Med*. 2009; 361(7): 649-651.
4. *OR twittering*. Available at: <http://edition.cnn.com/2009/TECH/02/17/twitter.surgery/index.html>. Accessed February 16, 2010.
5. *Medical Web Marketing*. [web page] [cited 2010 February 26]; Available from: <http://www.medical-webmarketing.com/>. Accessed February 26, 2010.
6. Ferguson, T. E-Patients: How They Can Help Us Heal Healthcare. E-patient scholars working group Available at: http://e-patients.net/e-patients_white_paper.pdf. Accessed February 10, 2010.
7. The Social Life of Health Information. Available at: <http://www.pewinternet.org/Reports/2009/8-The-Social-Life-of-Health-Information.aspx?r=1>. Accessed February 10, 2010.
8. Stalberg P, Yeh M, Ketteridge G, Delbridge H, Delbridge L. E-mail access and improved communication between patient and surgeon. *Arch Surg*. 2008; 143(2):164-168.
9. Miloh T, Annunziato R, Arnon R, Warshaw J, Parkar S, Suchy FJ, Iyer K, Kerkar N. Improved adherence and outcomes for pediatric liver transplant recipients by using text messaging. *Pediatrics*. 2009; 124(5):e844-850.
10. Steinbrook R. Health care and the American Recovery and Reinvestment Act. *N Engl J Med*. 2009;360(11):1057-1060.
11. Jha AK, DesRoches CM, Campbell EG, Donelan K, Rao SR, Ferris TG, Shields A, Rosenbaum S, Blumenthal D. Use of electronic health records in U.S. hospitals. *N Engl J Med*. 2009;360(16):1628-1638.
12. Kohn LT, Corrigan J, Donaldson MS. *To Err Is Human: Building a Safer Health System*. Washington, DC: National Academy Press; 2000:287.
13. Hartzband P, Groopman J. Off the record—Avoiding the pitfalls of going electronic. *N Engl J Med*. 2008; 358(16):1656-1658.
14. Reckmann MH, Westbrook JI, Koh Y, Lo C, Day RO. Does computerized provider order entry reduce prescribing errors for hospital inpatients? A systematic review. *J Am Med Inform Assoc*. 2009; 16(5):613-623.
15. Barnes SL, Robinson BR, Richards JT, Zimmerman CE, Pritts TA, Tsuei BJ, Butler KL, Muskat PC, Davis K Jr, Johannigman JA. The devil is in the details: Maximizing revenue for daily trauma care. *Surgery*. 2008;144(4):670-676.
16. Latifi R, Hadeed GJ, Rhee P, O'Keeffe T, Friese RS, Wynne JL, Ziemba ML, Judkins D. Initial experiences and outcomes of telepresence in the management of trauma and emergency surgical patients. *Am J Surg*. 2009; 198(6): 905-910.
17. Thomas EJ, Lucke JF, Wueste L, Weavind L, Patel B. Association of telemedicine for remote monitoring of intensive care patients with mortality, complications, and length of stay. *JAMA*. 2009; 302(24):2671-2678.
18. Miller CC. The virtual visit may expand access to doctors. *New York Times*. December 20, 2009. Available at: <http://www.nytimes.com/2009/12/21/technology/start-ups/21doctors.html>. Accessed April 14, 2010.
19. Chen, PW. Medicine in the age of Twitter. *New York Times*. June 11, 2009. Available at: <http://www.nytimes.com/2009/06/11/health/11chen.html>. Accessed April 14, 2010.

Dr. Nelson is a resident in general surgery, University of North Carolina Hospitals, Durham, NC, and a member of the RAS-ACS Communications Committee.



Dr. Raman is a resident in general surgery, Bronx-Lebanon Hospital Center, Bronx, NY, and a member of the RAS-ACS Communications Committee.

